

ABSTRACT OF THE DISCLOSURE

The invention provides a method of producing dialkylbiphenyls and trialkylbiphenyls efficiently using a continuous flow system. The method of continuously producing polyalkylbiphenyls comprises the following four steps: (1) a step of supplying reaction raw materials containing at least biphenyl and an olefin to a flow system reactor wherein the mol ratio of olefin/biphenyl is 0.3 to 3 at the inlet of the reactor and reacting the raw materials in the presence of a solid acid catalyst to obtain a reaction mixture containing monoalkylbiphenyls and dialkylbiphenyls, (2) a step of separating a fraction containing biphenyl and at least a part of monoalkylbiphenyls from the above reaction mixture, (3) a step of circulating the fraction separated in the step (2) to the reactor such that the ratio by weight of biphenyl to monoalkylbiphenyls is designed to be 0.1 or more and is designed to be less than the solubility of biphenyl to monoalkylbiphenyl at a circulation temperature and (4) a step of recovering polyalkylbiphenyls containing at least one of a 3,3-dialkylbiphenyl, a 3,4'-dialkylbiphenyl, a 4,4'-dialkylbiphenyl and a 3,5'-dialkylbiphenyl from the reaction mixture through the step (2). According to the invention, polyalkylbiphenyls can be efficiently produced in a high yield. The fraction containing biphenyl and monoalkylbiphenyls separated from the reaction mixture is circulated to a reaction step (2) under the condition that biphenyl is dissolved in monoalkylbiphenyls and does not crystallize out at any point in the circulation. This ensures

that it is unnecessary to use any other solvent for solving biphenyl and it is also unnecessary to provide the whole circulation line with heat insulation arrangement, making it possible to simplify production equipment and to decrease production cost. It is thus possible to produce polyalkylbiphenyls in a very efficient manner.